

II. CLAIMS

1. (Previously presented) A description means for contents of a motion picture, said means comprising:

(a) means for setting a reference plane by using a zone description and a camera model;

(b) means for describing each of a plurality of objects on said motion picture by position on said reference plane and a predefined type of actions, said describing means providing a description based on changes in the shape of an object; and

(c) means for describing each of a plurality of scenes in said motion picture by using said means for describing each of a plurality of objects in respective ones of said scenes.

2. (Previously presented) A search means for contents of a motion picture, said means comprising of:

(a) means for setting a reference plane by using a zone description and a camera model;

(b) means for describing each of a plurality of objects on said motion picture by position on said reference plane and a predefined type of actions, said describing means providing a description based on changes in the shape of an object;

(c) means for describing each of a plurality of scenes in said motion picture by using said means for describing each of a plurality of objects in respective ones of said scenes; and

(d) means for searching the motion picture by using said means for describing each object or said means for describing each scene.

3. (Previously presented) A description method for a motion picture, said method comprising the steps of:

(a) determining a reference plane by using a zone description and a camera model, wherein the reference plane represents information of objects and their positions included in said motion picture;

(b) representing changes over time of each of said object positions on said reference plane as a trajectory;

(c) setting a description unit based on a predefined type of actions of each of said objects by using changes in shape of each object so as to assign actions of each object as respective behavioral sections; and

(d) defining each of a plurality of scenes in said motion picture by a plurality of said objects.

4. (Previously presented) A search method for a motion picture, said method comprising the steps of:

- (a) setting a reference plane by using a zone description and a camera model, wherein the reference plane represents information of objects and their positions included in said motion picture;
 - (b) representing changes over time of each of said object positions on said reference plane as a trajectory;
 - (c) setting a description unit based on a predefined type of actions of each of said objects by using changes in shape of each of said objects so as to assign actions of each object as respective behavioral sections;
 - (d) defining each of a plurality of scenes in said motion picture by a plurality of said objects; and
 - (e) searching for a specific one of said scenes by using said actions of each object for said one scene.
5. (Previously presented) A description method for a motion picture, said method comprising the steps of:

- (a) determining a reference plane from said motion picture by using a zone description and a camera model;
- (b) cutting a region map for a region presented in said motion picture, identifying an object to obtain trajectory ID for an individual one of a plurality of objects in said motion picture, classifying action to obtain an action ID, and obtaining a camera parameter from said motion picture;

(c) creating a description of actions by each of said objects from said region map, said object trajectory ID, said action ID and said camera parameter, said description creating step also providing a description based on changes in the shape of an object; and

(d) creating a description of scenes in said motion picture by using said description of actions by each of said objects.

6. (Previously presented) A search method for a motion picture, said method comprising the steps of:

(a) determining a reference plane from said motion picture by using a zone description and a camera model;

(b) cutting a region map for a region presented in said motion picture, identifying an object to obtain trajectory ID for an individual one of a plurality of objects in said motion picture, classifying action to obtain an action ID and obtaining a camera parameter from said motion picture;

(c) creating a description of actions by each of said objects from said region map, said object trajectory ID, said action ID and said camera parameter, said description creating step also providing a description based on changes in the shape of an object;

(d) creating a description of scenes in said motion picture by using said description of actions by each of said objects; and

- (e) searching for a specific one of said scenes by using said description of actions by each object or said description of scenes.

7. (Canceled)

8. (Previously presented) A computer readable storage medium which has recorded a program, the program directing a computer to execute the steps of:

recording management data for searching a motion picture;

recording data of a description of actions by each of a plurality of objects defined by data of their respective positions on a reference plane and predefined types of actions, the reference plane being set by using a zone description and a camera model, wherein recorded data includes a description based on changes in the shape of an object; and

recording data of a description of scenes defined by said data of description of actions.

9. (Previously presented) A computer readable storage medium which has recorded a program, said program directing a computer to execute the steps of:

- (a) determining a reference plane set by using a zone description and a camera model, the reference plane

representing information of objects and their positions included in a motion picture;

(b) representing changes over time of each of each of said object positions on said reference plane as a trajectory;

(c) setting a description unit based on predefined types of actions of each of said objects by using changes in shape of each object so as to assign actions of each object as a respective behavioral section; and

(d) defining each of a plurality of scenes in said motion picture by plural ones of said objects.

10. (Previously Presented) The description means of claim 1 wherein the reference plane comprises information on object positions independently of a camera movement.

11. (Previously Presented) The description means of claim 1 wherein the reference plane represents a ground for determining positions of objects in relation to an actual direction of motion of the object.

12. (Previously Presented) The search means of claim 2 wherein the reference plane comprises information on object positions independently of a camera movement.

13. (Previously Presented) The search means of claim 2 wherein the reference plane represents a ground for determining

positions of objects in relation to an actual direction of motion of the object.

14. (Previously Presented) The description method of claim 3 wherein the reference plane further represents motion of objects independently of camera motion.

15. (Previously presented) The description method of claim 3 wherein the reference plane further represents a ground for determining position and movement of objects in relation to an actual direction of motion of each of respective ones of the objects that is independent of a camera motion.

16. (Previously presented) The search method of claim 4 wherein setting the reference plane further comprises setting a ground for determining position and movement of objects in relation to an actual direction of motion of an individual one of the objects that is independent of a camera motion.

17. (Previously presented) The description method of claim 5 wherein determining the reference plane further comprises setting a ground for determining position and movement of objects in relation to an actual direction of motion of an individual one of the objects that is independent of a camera motion.

18. (Previously presented) The search method of claim 6 wherein determining the reference plane further comprises setting a

ground for determining position and movement of respective ones of said objects in relation to an actual direction of motion of an individual one of the objects that is independent of a camera motion.

19. (Previously presented) The computer readable storage medium of claim 9 wherein the reference plane further represents a ground for determining actual object position and movement included in the motion picture that is independent of a camera motion tracking the object position and movement.

20. (Previously presented) A computer readable storage medium which has recorded a program, said program directing a computer to execute the steps of:

- (a) setting a reference plane by using a zone description and a camera model, the reference plane representing information of object positions included in a motion picture;
- (b) representing changes over time of each object position on said reference plane as a trajectory;
- (c) setting a description unit based on predefined types of actions of each object by using changes in shape of each object so as to assign actions of each object as a respective behavioral section;
- (d) defining each of a plurality of scenes of said motion picture by plural ones of said objects; and

(e) searching a specific one of said scenes by using said actions of each object for said one scene.